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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/702,218	10/30/2000	Arthur W. Wang	PD-990302	9458

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HUGHES ELECTRONICS CORPORATION
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EXAMINER	
LEE, JOHN J	

ART UNIT	PAPER NUMBER
2684	9

DATE MAILED: 02/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/702,218	WANG, ARTHUR W.	
	Examiner	Art Unit	
	JOHN J LEE	2684	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 November 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32 and 45-52* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *12-14* is/are allowed.

6)☒ Claim(s) *1-7,9-11,15-22,24-31 and 45-52* is/are rejected.

7)☒ Claim(s) *8,23 and 32* is/are objected to.

8)☒ Claim(s) *33-44* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. Applicant's arguments with respect to claims 1 – 32 have been considered but are moot in view of the new ground(s) of rejection.

2. Newly submitted claims 33 - 44 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Inventions I (claim 1) and II (claims 33 and 42) are related as subcombinations disclosed as usable together in a single combination. The originally claimed invention as claim 1 is related to broadcasting satellite system (class [455], subclass [427]), However, newly submitted claimed invention as claims 33 and 42 are related to receiver station antenna system (class [455], subclass [277.1]). Therefore, the Examiner does not further consider the newly submitted claims 33 - 44.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 33 - 44 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Objections

3. Claims 50 and 52 are objected to because of the following informalities: the spelling of word "antennae" should be changed to "antenna". Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. **Claims 1-7,9,15-22,24-31 and 45-52** are rejected under 35 U.S.C. 103(a) as being unpatentable over Castiel et al. (US Patent number 6,678,519) in view of Briskman et al. (US Patent number 6,564,053).

Regarding **claims 1, 16, and 24**, Castiel discloses that a system for providing at least near continuous broadcast service to a terrestrial receiver (Fig. 2 and abstract). Castiel teaches that a plurality of satellites (100, 110 in Fig. 1), each satellite in an inclined, elliptical, geosynchronous orbit (abstract and Fig. 2), each satellite providing a portion of time of the at least near continuous broadcast service to the terrestrial receiver (104 in Fig. 2-2) (Fig. 1, 2, abstract, and column 9, lines 28 – 67 where teaches geosynchronous orbits provide a portion of time to broadcast multimedia service to terrestrial receiver).

Castiel does not specifically disclose the limitation "the plurality of satellites augments at least one used satellite in a geostationary orbit". However Briskman teaches the limitation "the plurality of satellites augments at least one legacy (used or heritage) satellite in a geostationary orbit" (column 5, lines 30 – 63 and Fig. 7 where teaches the optimization is to minimize the satellites' mass, particularly the amount of on-board propellant needed for correcting the orbits from long term perturbations). It would have

been obvious to one having ordinary skill in the art at the time the invention was made to modify the Castiel system as taught by Briskman. The motivation does so would be to achieve an optimum using satellite and reducing cost in satellite system.

Regarding **claims 2, 15, and 17**, Castiel discloses that a first satellite (110 in Fig. 1) actively servicing the terrestrial receiver (112 in Fig. 2-2) (column 8, lines 35 – 43), and a second satellite (100 in Fig. 1), wherein an apparent position of the second satellite relative to the terrestrial receiver is substantially proximate the apparent position of the first satellite relative to the terrestrial receiver (column 10, lines 1 – 20 and Fig. 4) when the first satellite completes providing its portion of the broadcast service (column 9, lines 28 – column 10, lines 20 and Fig. 1, 4).

Regarding **claims 3, 18, and 27**, Castiel discloses that a track of the apparent position of each of the satellites relative to the terrestrial receivers when the satellite is providing its portion of the at least near continuous broadcast service is substantially closed loop (column 5, lines 16 – 64 and Fig. 1, 2).

Regarding **claims 4, 19, and 28**, Castiel discloses that the terrestrial receiver comprises an antenna having a sensitivity characteristic substantially corresponding to the track of the apparent position of each of the satellites (column 11, lines 63 – column 12, lines 22 and Fig. 2, 4).

Regarding **claims 5, 20, and 29**, Castiel discloses that the track of the apparent position of each of the satellites substantially corresponds to a sensitivity pattern of an antenna at the terrestrial receiver (column 11, lines 63 – column 12, lines 22 and Fig. 2, 4).

Regarding **claims 6, 21, and 30**, Castiel discloses that a track of the apparent position of each of the satellites relative to the terrestrial receivers when the satellite is providing its portion of the at least near continuous broadcast service is substantially teardrop-shaped (Fig. 6, 7 and column 14, lines 6 – 60).

Regarding **claims 7, 22, and 31**, Castiel and Briskman disclose all the limitation, as discussed in claim 1. Furthermore, Castiel further discloses that an orbit inclination approximately equal to 50 degrees (column 6, lines 24 – 53) and eccentricity approximately equal to 0.13 (column 10, lines 41 – 67). More specifically, Briskman also teaches the limitation (see column 2, lines 5 – 19).

Regarding **claim 9**, Castiel and Briskman disclose all the limitation, as discussed in claims 1 and 4.

Regarding **claim 25**, Porcelli discloses all the limitation, as discussed in claims 1 and 2.

Regarding **claim 26**, Porcelli discloses all the limitation, as discussed in claims 1 and 2.

Regarding **claim 45**, Castiel and Briskman disclose all the limitation, as discussed in claim 1. Furthermore, Castiel further discloses that a receiver station antenna (262 in Fig. 2-2) that can communicate with said at least one satellite and at least one of said plurality of satellites during an active period without tracking (column 9, lines 1 – 27 and Fig. 1, 2). Castiel teaches that a gateway having a tracking antenna to track said plurality of satellites (Fig. 1, 2, column 11, lines 63 – column 12, lines 22, and column 9, lines 1 – 27).

Regarding **claim 46**, Castiel and Briskman disclose all the limitation, as discussed in claims 3 and 45. Furthermore, Castiel further discloses that the apparent position of the active satellite substantially overlaps another one of the plurality of satellites that is beginning the active period (6, 7, column 14, lines 6 – 67, and column 7, lines 14 – 22).

Regarding **claim 47**, Castiel discloses that a beamwidth of said tracking antenna of said gateway is sufficient to encompass both said active one and said another one of said plurality of satellites (Fig. 4 and column 12, lines 5 – column 13, lines 4).

Regarding **claim 48**, Castiel discloses that apparent positions of the plurality of satellites are spatially separated from the apparent position of the at least one satellite in geostationary orbit to avoid interference (abstract, Fig. 4, 8, and column 14, lines 19 – 60).

Regarding **claim 49**, Castiel and Briskman disclose all the limitation, as discussed in claims 4 and 45. Furthermore, Castiel further discloses that at least one satellite in geostationary orbit is at least thirty degrees (column 15, lines 1 – 14 and Fig. 8).

Regarding **claim 50**, Castiel and Briskman disclose all the limitation, as discussed in claims 1 and 3. Furthermore, Castiel further discloses that a receiver station having relatively high gain, fixed antenna capable of communication with said at least one satellite in a geostationary orbit (column 4, lines 12 – 48 and Fig. 2).

Regarding **claim 51**, Castiel and Briskman disclose all the limitation, as discussed in claims 48 and 50.

Regarding **claim 52**, Castiel and Briskman disclose all the limitation, as discussed in claims 3 and 6.

6. **Claims 10 and 11** are rejected under 35 U.S.C. 103(a) as being unpatentable over Castiel in view of Briskman and in further view of Maeda et al. (US Patent number 6,422,516).

Regarding **claim 10**, Castiel and Briskman do not specifically disclose the limitation "the receiver antenna comprises a reflector having a focal line and a focal point on the focal line and a head, wherein the head is disposed offset from the focal point". However, Maeda discloses the limitation "the receiver antenna comprises a reflector having a focal line and a focal point on the focal line and a head, wherein the head is disposed offset from the focal point" (column 4, lines 17 – column 5, lines 16 and Fig. 5, 6). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Castiel and Briskman systems as taught by Maeda. Doing so would enhance the signal/data adaptability in satellite communication system.

Regarding **claim 11**, Castiel, Briskman, and Maeda disclose all the limitation, as discussed in claim 10.

Allowable Subject Matter

7. Claims 12 – 14 are allowed.

Claims 12 – 14 are allowable over the prior art of record because a search does not detect the combined claimed elements as set forth in the claims 12 – 14.

As recited in independent claim 12, none of the prior art of record teaches or fairly suggests that the receiver antenna comprises a reflector having a focal line and a focal point on the focal line and a head, wherein the head is disposed offset from the focal point, and wherein the head is disposed offset from the focal line and the reflector is approximately 18 centimeters in diameter, and the head is disposed approximately 7 inches offset from the focal point and approximately 4 inches offset from the focal line, and together with combination of other element as set forth in the claims 12 – 14. Therefore, claims 12 – 14 are allowable over the prior art of records.

8. Claims 8, 23, and 32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record fails to show "the satellite orbits are a period approximately equal to 86164 seconds, an altitude at perigee approximately equal to 30305 kilometers, and an altitude at apogee approximately equal to 41268 kilometers" as specified in the claims 8, 23, and 32.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Cellier (US Patent number 6,327,523) discloses Overhead System of Inclined Eccentric Geosynchronous Orbiting Satellites.

Kita (US Patent number 6,675,011) discloses Communication Terminal Device with Communication Controller.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 308-9051, (for formal communications intended for entry)

Or:

(703) 308-6606 (for informal or draft communications, please label "PROPOSED" or "DRAFT").

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John J. Lee** whose telephone number is **(703) 306-5936**. He can normally be reached Monday-Thursday and alternate Fridays from 8:30am-5:00 pm. If attempts to reach the examiner are unsuccessful, the examiner's supervisor, **Nay Maung**, can be reached on **(703) 308-7745**. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4700.

J.L

February 4, 2004

John J Lee

NAY MAUNG
SUPERVISORY PATENT EXAMINER